PROC. ENTOMOL. SOC. WASH.
107(3), 2005, pp. 510–516

A NEW GENUS OF THE SUBFAMILY CUBACUBANINAE (ZYGENTOMA: NICOLETIIDAE) FROM VERACRUZ, MEXICO

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Abstract.—***Acanthonima veracruzi*, n. gen., n. sp.**, is described and separated from other species of the subfamily Cubacubaninae. It was collected from under rocks by the side of the Actopan River in Veracruz, Mexico.

Key Words: Thysanura, Zygentoma, Nicoletiidae, Cubacubaninae, Actopan

While reviewing the Zygentoma collection of the American Museum of Natural History, eight nicoletiids were found in a vial with ethanol labeled as "Puente Actopan, 5 km SE Actopan, Veracruz, Mexico. 25 Dec. 1976. J. Reddell, A. Grubbs." One individual was an undescribed species of *Squamigera* Espinasa (1999a), another individual belonged to the Atelurinae, and the six remaining individuals belonged to the subfamily Cubacubaninae, but these could not be assigned to any previously described genus. Dissections of a male and a female of this last group were made with aid of a stereo microscope and mounted in fixed preparations with Hoyer's solution. The four remaining samples were left in a vial with ethanol. Illustrations were made with aid of a camera lucida attached to a compound microscope. Here I describe and name a new genus and species. Types are deposited in the Zygentoma collection of the American Museum of Natural History, N.Y., N.Y.

Acanthonima Espinasa, new genus

Diagnosis.—A member of the subfamily Cubacubaninae without scales. Cerci and median filament of mature males with spines.

Description.—Pedicellus of adult male with unicellular glands. Mouthparts not specialized. Mandible strongly sclerotized apically with usual teeth. Galea apically with sensory pegs. Lacinia heavily sclerotized distally. First process of lacinia pectinate. Labium without prominent lateral lobes.

Tarsi with four articles. Praetarsi with three simple claws. Median claw glabrous, slender and smaller than lateral claws. Urosterna II–VII subdivided into two coxites and one sternite. Urosterna VIII and IX of male entire. Median portion of sternites with 1 + 1 sublateral macrochaetae at hind borders, as well as 1 + 1 macrochoetae near suture at about middle of segment. Coxites on segments II–IX with stylets. Eversible vesicles on segments II–VI, pseudovesicles on VII. Urosterna III and IV of adult males apparently without modifications. Urosterna VIII with a wide and not too deep posterior emargination. Tergum X with several subequal macrochaetae on posterior angles.

Point of insertion of parameres apparently slightly deep and with modified setae on internal face of coxal processes. Parameres normal for subfamily; specialized setae on apex, but otherwise not subdivided nor somewhat constricted apically. Stylets IX

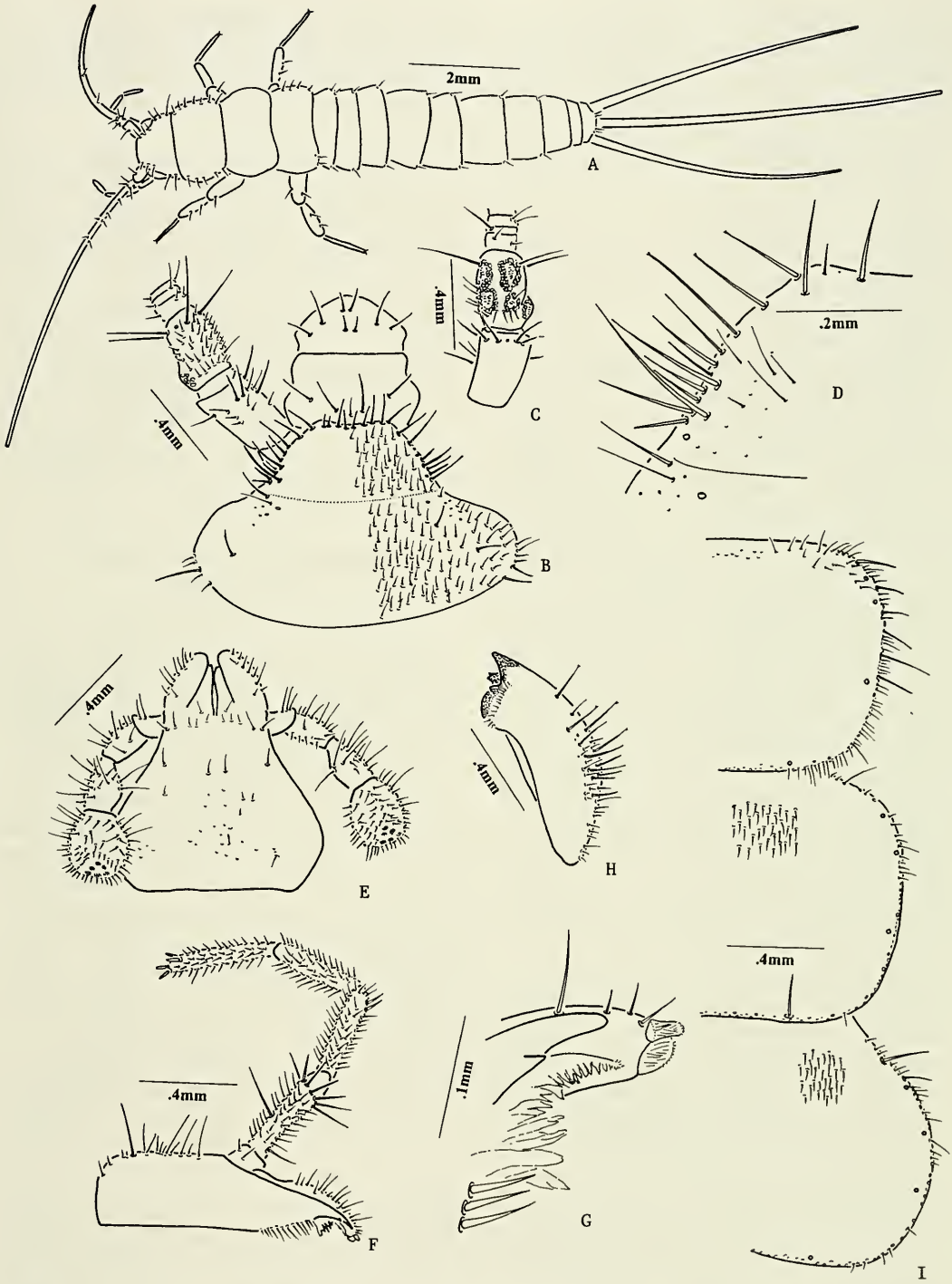

Fig. 1. *Acanthonima veracruzi,* male holotype. Microchaetae partially shown. A, Body. B, Head and antennae. C, Pedicellus. D, Setae on border of insertion of antennae. E, Labial palp and labium. F, Maxilla. G, Apex of maxilla. H, Mandible. I, Thoracic terga.

apparently without spines. Opening of penis longitudinal. Cercus of male with sensory pegs, some may even be arranged in two rows. Appendix dorsalis also with sensory pegs. Female with a subgenital plate.

Type species.—*Acanthonima veracruzi, n. sp.*

Etymology.—Akantha = spine, nima = filament (in nominative feminine singular). In reference to the spines or pegs along the appendix dorsalis, also known as middle terminal filament.

Remarks.—*Acanthonima* belongs to the Cubacubaninae (Mendes 1988), characterized by subdivided abdominal sterna II–VII and fused coxites of abdominal segments VIII and IX. *Acanthonima* is distinguished from almost all genera of this subfamily by having sensory pegs on the appendix dorsalis. Appendix dorsalis pegs were previously described only in nicoletiids of the subfamilies Coletiniinae and Subnicoletiinae (Mendes 1988). The only other specimens with pegs on the appendix dorsalis within the Cubacubaninae belong to an undescribed *Squamigera* species from a cave in Chiapas, Mexico, and are currently under study. The two species can easily be differentiated because the *Squamigera* new species has a longer and more subdivided ovipositor and a prominent downward pointing robust spine in the pedicellus, which is absent in *Acanthonima veracruzi.*

The genus *Acanthonima* can further be differentiated from *Texoreddellia* Wygodzinsky (1973) and *Squamigera* by the absence of scales; from *Allonicoletia* Mendes (1992) by the presence of stylets on urosternite II; from *Neonicoletia* Paclt (1979) by the aspect of the endopodium; from *Prosthecina* Silvestri (1933) by the absence of conspicuous lateral lobes bearing numerous glandular pores in the submentum; from most *Anelpistina* Silvestri (1905) by the absence of articulated submedian appendages in urosternite IV of males; from the *Anelpistina* Espinasa (1999b) without the appendages and from *Cubacubana* Wygodzinsky and Hollinger (1977) by the sensory pegs of the appendix dorsalis. Pegs in cerci in the last two genera are also arranged in a single row, while, at least in this new species, they are arranged in two rows at times.

The pedicellus of the adult male in *Acanthonima veracruzi* is also unique for the subfamily in having a cluster of unicellular glands on a basal bulge on the outer border of the antennae (Figs. 1B, C). Regrettably, this character is variable along the postembryonic development and is absent in juveniles. Also, pedicellus modifications are quite variable among the genera. Until more *Acanthonima* species are described, it is unknown if this character will be diagnostic for the genus or if it only represents species variation within the genus.

Acanthonima veracruzi Espinasa, new species

(Figs. 1A–I, 2A–F, 3A–F)

Type material.—Puente Actopan, 5 km SE Actopan, Veracruz, Mexico. 25 Dec. 1976. J. Reddell, A. Grubbs cols. Male holotype, 3 male paratypes, 1 adult female and 1 juvenile female paratypes.

Description.—Maximum body length of samples 9.5 mm. Maximum conserved length of antenna and caudal appendages 6.0 mm and 5.0 mm. Body proportions as in Fig. 1A. General color light yellow to white. Basal articles of antenna of female simple. Pedicellus of male equal in length to first article and with five clusters of unicellular glands. Four ventral clusters bordered with a not too conspicuous row of microchaetae forming a "U." Last cluster on basal bulge on outer border (Figs. 1B, C). Head with macrochaetae and microchaetae as shown in Figs. 1B and D, very abundant on border of insertion antennae. Mouthpart appendages relatively short, labial palp as in Fig. 1E, apical article barely longer than wide and barely longer than next to last article. Penultimate article with bulge containing two macrochaetae. Labium and first article of labial palp with macrochaetae. Maxilla as shown in Fig. 1F.

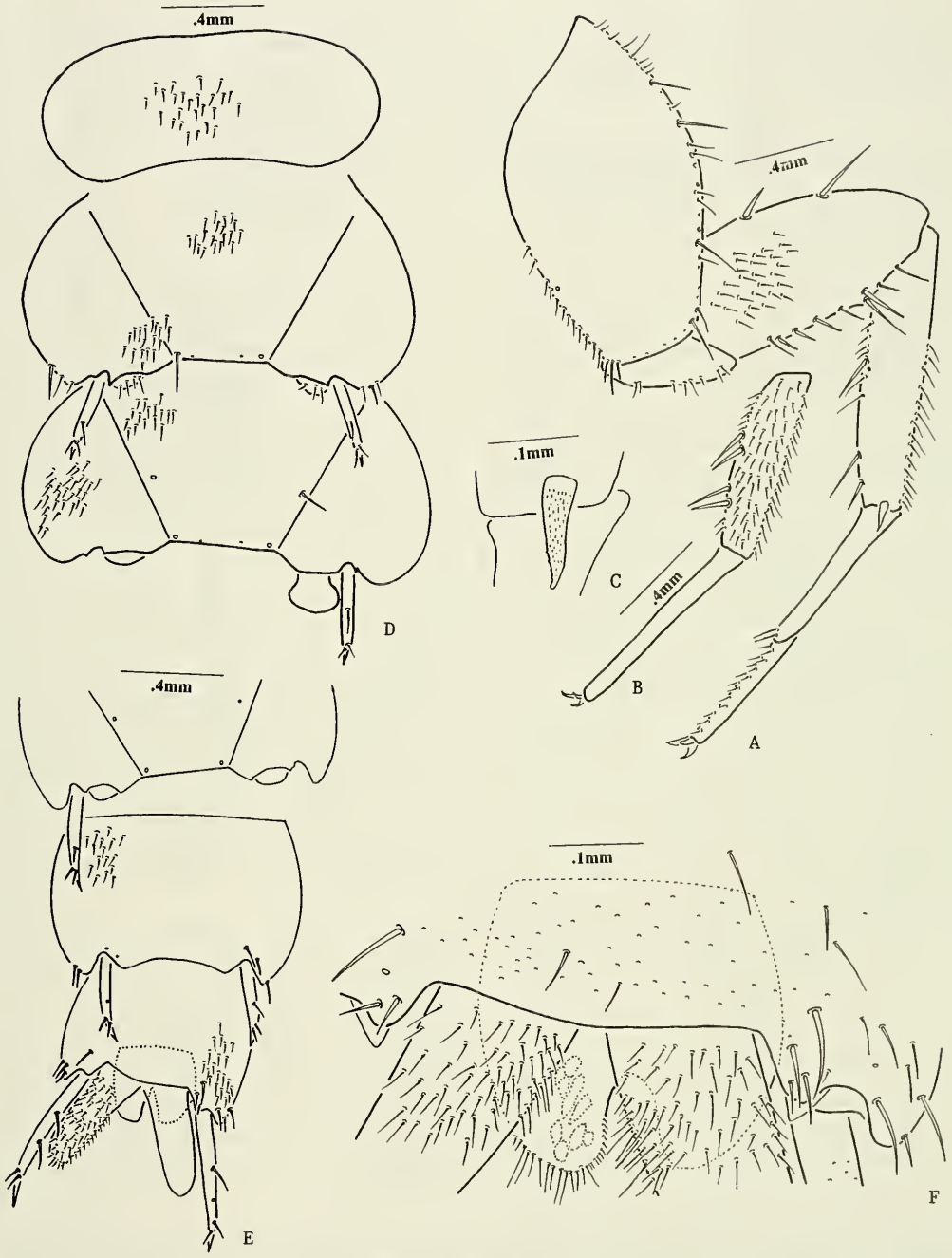

Fig. 2. *Acanthonima veracruzi*, male holotype. Microchaetae partially shown. A, Third leg. B, Second leg. C, Apex of tibia. D, Urosterna I–III. E, Urosterna VII–IX. F, Penis and coxal processes.

Last article ¼ longer than penultimate. Apex of galea with two conules, one longer than wide and other wider than long (Fig. 1G). Two teeth on lacinia. Mandible chaetotaxy as in Fig. 1H, with many macrochaetae, although only four bifid.

Pro-, meso-, and metanota with approximately 3 macrochaetae slightly inside of

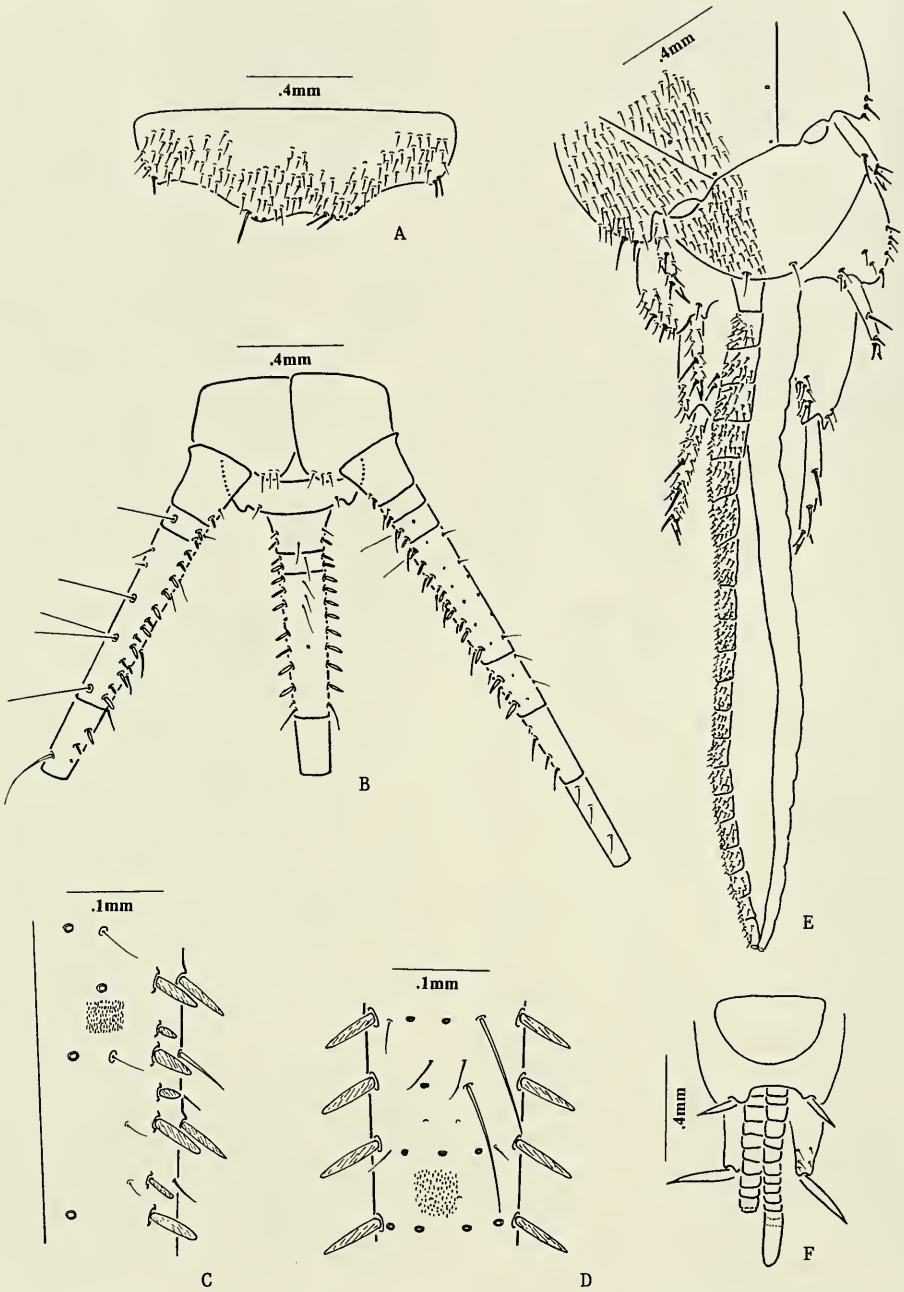

Fig. 3. *Acanthonima veracruzi,* A–D, Male holotype. E, Female paratype. F, Juvenile female paratype. Microchaetae partially shown. A, Urotergum X. B, Caudal appendages. C, Sensory pegs on cercus. Notice the double row of spines. D, Sensory pegs on appendix dorsalis. E, Subgenital plate and ovipositor. Tip of ovipositor broken. F, Subgenital plate and ovipositor in immature female.

lateral borders, apart from several setae of varied sizes at edge of borders (Fig. 1I). Legs of medium size, hind tibia approximately 5× longer than wide and 1/6 shorter than tarsus (Fig. 2A). Tibia of second leg somewhat stouter (4× longer than wide) with 4 macrochaetae (Fig. 2B). Claws of normal size.

Abdominal sterna as in Figs. 2D, E. Urosternum III and IV without modifications. Urosternum VIII of male very slightly emarginated, its projections far apart, rounded and small (Fig. 2E). Urosternum IX of male as in Fig. 2E. Point of insertion of parameres in urosternum IX slightly below level of base of the stylets of this segment. Base of internal faces of coxal processes with longer and slightly sclerotized macrochaetae (Fig. 2F). Penis and parameres as in Figs. 2E, F. Parameres attaining almost 3/4 length of stylets IX.

Stylets IX larger than others, without sensory cones, and with two macrochaetae and an extra subapical pair. Terminal spine with small teeth. Urotergite X shallowly emarginate in both sexes, posterior angles with several macrochaetae and a few relatively strong setae (Fig. 3A). Length of inner macrochaetae about half distance between them.

Cercus of adult male straight, with a longer than wide basal article, sometimes followed by one or two articles wider than long, then a very long article, followed by numerous short articles. Sensory pegs of subequal size on very long article and on one or two of short articles (Fig. 3B). Some pegs arranged in double rows (Fig. 3C). Appendix dorsalis with sensory pegs (Figs. 3B, D). Female cercus and appendix dorsalis simple.

Subgenital plate of female rounded (Figs. 3E, F). Ovipositor in single adult female surpassing apex of stylets IX by slightly less than 3× length of stylets (Fig. 3E), but in this specimen ovipositor's tip broken and its left side partially deformed. Gonapophyses with slightly more than 21 articles (last few articles missing).

Etymology.—The name *veracruzi* (in genitive singular) refers to the state of Veracruz, Mexico, where the samples were collected.

Remarks.—The male postembryonic development is mostly unknown because samples ranged from 6.8 mm to 9 mm. The only difference in the two individuals smaller than 7.3 mm from the bigger individuals is that the bulge in the pedicellus is absent. The length of the parameres and sensory pegs on the caudal appendages remain the same. As for the females, only two were available for study, one measuring 8 mm and the other 5.2 mm. In the smaller female, the ovipositor barely surpasses the apex of the stylets IX (Fig. 3F).

The limits of distribution are currently unknown for the species, although as a generality, members of the subfamily Cubacubaninae are restricted to the Neotropics and each species is known from a single locality. It is likely that the species is limited to the State of Veracruz. The only individuals found to date are those collected by Reddell and Grubbs in 1976 in Actopan, Veracruz, Mexico. An extensive search on 11/19/01 in the type locality provided many nicoletiid specimens, most of them *Anelpistina,* but no new specimens of *Acanthonima veracruzi* could be found. The reason for their absence, is currently unknown.

Acknowledgments

I thank Randall T. Schuh, George Willett Curator and Chair of the Division of Invertebrate Zoology of the American Museum of Natural History, for kindly offering the material in the collection for study. Thanks to Graeme Smith and Luis F. Mendes for reviewing the manuscript, and to Oscar Dorado and Dulce Arias, both directors of CEAMISH, Universidad Autonoma del Estado de Morelos (UAEM), for their support of the study. Work was done while on sabbatical leave from UAEM, in facilities of the American Museum of Natural History and Shenandoah University.

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